

Amendments to the Specification

Please add the following at the top of page 1 before "Background of Invention"

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a divisional of Application No. 10/322,786, filed December 18, 2002, now pending, which is a divisional of Application No. 09/670,530, filed September 27, 2000, now U.S. Patent 6,515,190, which is a divisional of Application No. 09/324,931, filed June 3, 1999, now U.S. Patent 6,160,190, which is a divisional of Application No. 09/121,106 filed July 23, 1998, now U.S. Patent 5,948,946, which is a divisional of Application No. 08/574,751 filed December 19, 1995, now U.S. Patent 5,824,622, which is a continuation-in-part of Application No. 08/362,063 filed December 22, 1994, now abandoned, which is a continuation-in-part of Application No. 08/180,250 filed January 12, 1994, now abandoned.

Please amend the paragraph bridging pages 10 and 11 as follows:

The present invention provides an improved process for the nitration of an aromatic compound wherein the improvement comprises contacting the aromatic compound with a microcomposite of the present invention as a catalyst. For example, in the nitration of benzene, a solution comprising benzene and optionally, a desiccant such as MgSO_4 , is heated, typically to reflux at atmospheric pressure under an inert atmosphere, and a nitrating agent, for example, HNO_3 is added. The process is conducted under normal nitration conditions which conditions, such as temperature, are dependent upon the reactivity of the aromatic used. When a microcomposite of the present invention is used as a catalyst in the benzene solution, a high rate of conversion and selectivity to nitrobenzene is demonstrated as compared to "NAFION[®]" PFIEP alone or to the use of no catalyst (see Table I, Example 42). A preferred catalyst for this process is a microcomposite of the present invention wherein the perfluorinated ion-exchange polymer contains pendant sulfonic acid groups and wherein the metal oxide is silica, alumina, titania, germania, zirconia, alumino-silicate, zirconyl-silicate, chromic oxide and/or iron oxide. Most preferred is wherein the perfluorinated ion-exchange polymer is a "NAFION[®]" PFIEP and the metal oxide is silica, the most preferred "NAFION[®]" PFIEP having approximately 6.3 tetrafluoroethylene (TFE) molecules for every perfluoro perfluoro(3,6-dioxo-4-methyl-7-octenesulfonyl fluoride) molecule ($\text{CF}_2=\text{CF}-\text{O}-[\text{CF}_2\text{CF}(\text{CF}_3)]-\text{O}-\text{CF}_2\text{CF}_2-\text{SO}_2\text{F}$ (PSEPVE)) and an equivalent weight of approximately 1070.

Please amend the paragraph bridging pages 11 and 12 as follows:

The present invention also provides an improved process for the alkylation of an aromatic compound with an olefin wherein the improvement comprises using the microcomposite of the present invention as a catalyst. For example, in the alkylation of toluene with n-heptene, the toluene and heptene are dried before use and then mixed and heated, for example, to about 100°C. Dried catalyst comprising the porous microcomposite of the present invention is added to the toluene/n-heptene solution and left to react. This improved process is generally conducted under normal alkylation conditions which conditions are dependent upon the reactivity of the aromatic and olefin used. A high rate of conversion is found using a microcomposite of the present invention as compared to using "NAFION[®]" NR 50 PFIEP as the catalyst. The preferred catalyst for this process is a microcomposite of the present invention wherein the perfluorinated ion-exchange polymer contains pendant sulfonic acid groups and wherein the metal oxide is silica, alumina, titania, germania, zirconia, alumino-silicate, zirconyl-silicate, chromic oxide and/or iron oxide. Most preferred is wherein the perfluorinated ion-exchange polymer is a "NAFION[®]" PFIEP and the metal oxide is silica, the most preferred "NAFION[®]" PFIEP having approximately 6.3 tetrafluoroethylene (TFE) molecules for every perfluoro perfluoro(3,6-dioxo-4-methyl-7-octenesulfonyl fluoride) molecule ($\text{CF}_2=\text{CF}-\text{O}[\text{CF}_2\text{CF}(\text{CF}_3)]-\text{O}-\text{CF}_2\text{CF}_2-\text{SO}_2\text{F}$ (PSEPVE)) and has an equivalent weight of approximately 1070.

Please amend the paragraph at page 13 between lines 7 and 16 as follows:

A preferred catalyst for the polymerization of tetrahydrofuran, for the acylation of an aromatic compound and for the dimerization of an alpha substituted styrene is a microcomposite of the present invention wherein the perfluorinated ion-exchange polymer contains sulfonic acid groups and wherein the metal oxide is silica, alumina, titania, germania, zirconia, alumino-silicate, zirconyl-silicate, chromic oxide and/or iron oxide. Most preferred is wherein the PFIEP is a "NAFION[®]" PFIEP and the metal oxide is silica, the most preferred "NAFION[®]" PFIEP having approximately 6.3 tetrafluoroethylene (TFE) molecules for every perfluoro perfluoro(3,6-dioxo-4-methyl-7-octenesulfonyl fluoride) molecule ($\text{CF}_2=\text{CF}-\text{O}[\text{CF}_2\text{CF}(\text{CF}_3)]-\text{O}-\text{CF}_2\text{CF}_2-\text{SO}_2\text{F}$ (PSEPVE)) and has an equivalent weight of approximately 1070.

Please amend the paragraph at page 15, between lines 3 and 12 as follows:

A preferred catalyst for the present olefin isomerization process is the microcomposite of the present invention wherein the perfluorinated ion-exchange polymer contains sulfonic acid groups and wherein the metal oxide is silica, alumina, titania, germania, zirconia, alumino-silicate, zirconyl-silicate, chromic oxide and/or iron oxide. Most preferred is wherein the perfluorinated ion-exchange polymer is a "NAFION[®]" PFIEP and the metal oxide is silica, the most preferred "NAFION[®]" PFIEP having approximately 6.3 moles of tetrafluoroethylene (TFE) molecules per mole of ~~perfluore~~ perfluoro(3,6-dioxa-4-methyl-7-octenesulfonyl fluoride) molecule ($\text{CF}_2=\text{CF}-\text{O}[\text{CF}_2\text{CF}(\text{CF}_3)]-\text{O}-\text{CF}_2\text{CF}_2-\text{SO}_2\text{F}$ (PSEPVE)) and an equivalent weight of approximately 1070.

Please amend the paragraph bridging pages 17 and 18 as follows:

EXAMPLES

"NAFION[®]" PFIEP solutions can be purchased from Aldrich Chemical Co., Milwaukee, WI, or PFIEP solutions generally can be prepared using the procedure of U.S. Patent 5,094,995 and U.S. Patent 4,433,082. The "NAFION[®]" PFIEP solution referred to in the examples below is, unless otherwise noted, "NAFION[®]" NR 005, a "NAFION[®]" solution available from DuPont Nafion[®] Products, Fayetteville, NC, and also known as "NAFION[®]" SE-5110, and is prepared from resin which is approximately 6.3 (TFE) molecules for every ~~perfluore~~ perfluoro(3,6-dioxa-4-methyl-7-octenesulfonyl fluoride) molecule ($\text{CF}_2=\text{CF}-\text{O}[\text{CF}_2\text{CF}(\text{CF}_3)]-\text{O}-\text{CF}_2\text{CF}_2-\text{SO}_2\text{F}$ (PSEPVE)) and an equivalent weight of approximately 1070. "NAFION[®]" NR50 PFIEP, the same resin used to ~~prepared~~ prepare the NR005 (SE-5110) solution is available in pellet form from E. I. du Pont de Nemours and Company, Wilmington, DE (distributed by Aldrich Chemical Company). NAFION[®] NR55 PFIEP is similarly available and structured with carboxylic ends as well as sulfonated ends on the pendant groups. "AMBERLYST 15[®]" sulfonated resin is a registered trademark of Rohm and Haas, Philadelphia, PA and is sold commercially by Rohm and Haas.